



STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
COLUMBIA ENVIRONMENTAL FIELD OFFICE

1421 HAMPSHIRE PIKE
COLUMBIA, TENNESSEE 38401
PHONE (931) 380-3371 STATEWIDE 1-888-891-8332 FAX (931) 380-3397

November 7, 2012

Honorable Dennis Webb
Mayor
Town of Bell Buckle
P.O. Box 276
Bell Buckle, TN 37020

RE: Compliance Evaluation Inspection
 Bell Buckle STP
 NPDES Permit No. TN0020591
 Bell Buckle, Bedford County, Tennessee

Dear Mayor Webb:

On October 26, 2012 I conducted a Compliance Evaluation Inspection (CEI) of the Bell Buckle Wastewater Treatment Plant. A CEI is conducted to determine compliance with the NPDES permit and to review the operation and maintenance of the treatment and collection system. The following comments are for your consideration:

Permit

The NPDES permit became effective on October 1, 2008 and shall expire on August 13, 2013. The application for renewal of the permit should be submitted no less than 180 days prior to expiration of the current permit.

Treatment Plant

A new plant headworks will be installed upon completion of the Basin 5 Sewer Rehabilitation project. The new headworks will be installed on the Equalization Basin (EQ) liftstation and will consist of a new debris removal system along with variable speed pumps. The influent will be pumped to a splitter to be installed on the EQ basin. Wastewater will gravity flow from the EQ basin to the treatment plant. This process will eliminate the suction pumps currently in use on the influent lift station at the treatment plant. The amount of algae on the clarifier weirs has been reduced since the previous CEI. The plant continues to operate with a significant amount of old sludge in the digester.

Laboratory

The lab is equipped to perform the testing required by the permit. Lab equipment used to conduct the analytical testing is calibrated annually by Labtronix. Calibrations performed by the operator are recorded on daily bench sheets for each parameter. A new Hach ISE pH meter was purchased in May 2012. A new Pelton/Crane Validator 10 Autoclave was purchased on August 31, 2012. Major improvements have been made on the interior of the lab. The lab flooring has been repaired, ceiling tiles have been replaced, inside walls have been painted and new lights have been installed.

Sludge

There are presently two drying beds in use at the treatment plant for the removal of sludge from the treatment plant. Sludge needs to be removed from the digester more frequently than is currently taking place. The optimal months for using open air drying beds are between the months of June and September. This process requires that the sludge be dried to a cake form before being removed from the beds. Sludge from the drying beds is currently being disposed of an approved land application site adjacent to the treatment plant. The annual sludge analysis report is being submitted as required by 40CFR503. An alternate means of sludge disposal needs to be evaluated. A cost analysis should be conducted to determine the feasibility of the cost between paying someone to pump out the sludge and the town either purchasing a de-watering box or buying a used tanker truck to land apply the sludge. This would allow a more efficient management of both the operational control and disposal of the wastewater sludge.

Collection System

The town recently conducted various sanitary sewer evaluation (SSES) activities to identify specific I/I related defects within the sanitary sewer collection system. Inspection activities included CCTV inspections, smoke testing and manhole inspections throughout the collection system. Additionally, dye testing was conducted at mainline crossings of Bell Buckle Creek. The result of these activities indicated that there were no signs or evidence of exfiltration of wastewater from the sanitary sewer system within the inspected areas.

Work continues on the Basin 5 Sewer Rehabilitation Project (Webb School Area) as a part of the inflow and infiltration (I/I) reduction program. Manholes within this basin are being lined with a Spectra-Shield Lining System. This multi-layered system eliminates groundwater intrusion, provides a reflective lighting and an impervious barrier to environmental penetration. Manholes and sewer lines on Abernathy Street are being replaced. Defective service lines identified during the CCTV inspections will be replaced. Upon completion of phase one of the project, a noticeable decrease in I/I entering the treatment system has been observed by the operator. There was no wastewater being treated in the EQ basin. The Basin 5 rehabilitation project is scheduled for completion in January 2013.

Outfall

A quality effluent is being produced by the treatment plant. The discharge was clear with no color contrast in the receiving stream. The sign at the outfall to Bell Buckle Creek should contain the same information as the untreated discharge sign.

Conclusion

With the scheduled completion of the Basin 5 Sewer Rehabilitation Project in January 2013, the reduction of inflow and infiltration (I/I) entering the collection system should begin to improve the overall operating efficiency of the treatment plant. The Equalization Basin (EQ) can be operated as designed instead of being at full capacity with I/I water, thus reducing the number of overflows at the untreated discharge point.

It is suggested that the town research alternative means of sludge removal and disposal from the treatment plant in addition to the current method being used. The type of wastewater treatment being used requires that sludge be wasted on a more frequent basis from the digester to allow the clarifiers to operate more efficiently. Even though the plant is producing a quality effluent, overloading of sludge within the treatment plant affects other aspects of the wastewater treatment process.

It is requested that this office be notified in writing when the Basin 5 Sewer Rehabilitation Project and the installation of the new plant head works have been completed.

This concludes my observations. I would like to thank Mr. Johnson for his time and cooperation during the inspection. If you have any questions you may reach me at gary.horne@tn.gov or at 1-931-840-4166.

Sincerely,



Gary Horne
Division of Water Resources